

CHAPTER 12

HAND GRENADES, LAND MINES, TRIP FLARES, AND BOOBY TRAPS

The reasons Seabees fight and the types of fighting they do are different from those of other sailors. The primary job of the Seabee is to build, but you cannot build unless you control the jobsite. Since, in many instances, the jobsite maybe in a forward or unfriendly area, the need for being able to conduct a proper defense becomes obvious. For this reason there are certain military requirements imposed on Seabees.

When required, your job is to use the defensive techniques and tactics you have learned in military training. The objective of this chapter is to make you familiar with the various types of grenades, land mines, flares, and booby traps you might use or encounter in tactical situations. You will learn how to use them, their components, their safety features, and how to take counter-measures against their effective use by the enemy.

HAND GRENADES

Hand grenades are nothing more than small bombs, containing explosives or chemicals, that can be thrown by hand or rigged as booby traps. Their origin has been traced back many centuries, and it is generally agreed that the Chinese, whom we credit with the invention of gunpowder, were first to use them. However, it was not until World War I that they were sufficiently developed to be effective and safe. By World War II, the grenade inventory expanded to include smoke grenades for signaling and screening, phosphorus and fragmentation grenades to produce casualties, and gas grenades for both casualty and riot control effects. The grenades being used today are in many respects representative of the entire history of the development of grenades.

TYPES AND PURPOSES OF GRENADES

There are several varieties of hand grenades designed for many purposes. All of these grenades can be broadly classified into six general types: fragmentation, illumination, chemical, incendiary, smoke, and practice and training grenades.

Fragmentation Grenades

Fragmentation grenades are used to produce casualties by the high-velocity projection of fragments

from the grenade case. The M67 fragmentation grenade (fig. 12-1) is the standard grenade used by Seabees. It has a smooth, sheet-metal body and is shaped like a ball. Its outer case is lined on the inside with a serrated wire coil. It is filled with 6.5 ounces of an explosive, known as Composition B, and uses a detonating type of fuze. When the detonator causes Composition B to explode, fragments of the body and fuze assembly are hurled in all directions. The M67 weighs 14 ounces and the average man can throw it 40 meters. The effective casualty-producing radius is 15 meters.

Illuminating Grenades

The MK1 (fig. 12-2) is the only illuminating grenade currently available. Its main use is to illuminate

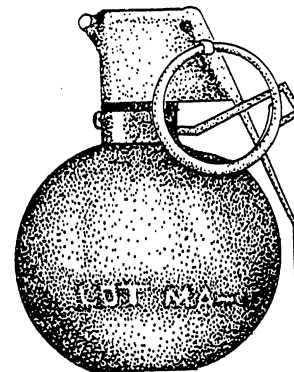


Figure 12-1.—Fragmentation hand grenade, M67.



Figure 12-2.—Illuminating hand grenade, MK1.

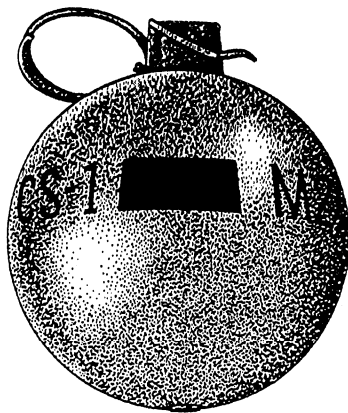


Figure 12-3.—ABC-M25A2, CS riot control hand grenade.

terrain in night operations. It provides about 55,000 candlepower for a period of 25 seconds. The MK1 grenade may also be used as an incendiary grenade to start fires in dry grass, leaves, or brush. When the two halves of the body are separated by the burning of an illuminating charge, they project with considerable velocity. Friendly forces should take cover until the illumination can be seen. Once the safety pin of this grenade has been removed, **the grenade is armed and MUST be thrown.** Do **NOT** attempt to replace the safety pin.

Chemical Grenades

Chemical grenades are chemical-filled munitions designed to be thrown by the individual or projected from the service rifle by means of an adapter. Chemical grenades are used for incendiary, screening, signaling, training, and riot control purposes as well as booby traps.

Perhaps the most commonly used chemical grenade is the ABC-M25A2, CS riot control hand grenade (fig. 12-3). This is a special-purpose bursting type of munition used for control of riots and for training purposes. The grenades are filled with chloracetophenone, a type of tear gas that causes irritation and watering of the eyes, resulting in temporary, partial, or total blindness. The body of the grenade is spherical and is made of plastic. It contains about 3.5 ounces of a mixture of CS and weighs about 7.5 ounces.

This grenade does not have a safety lever as other grenades do. To prevent the grenade from activating after the safety pin is removed, you must keep pressure on the top of the arming sleeve with the thumb of your throwing hand.

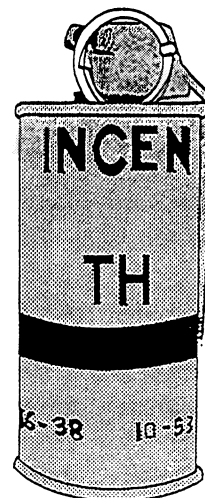


Figure 12-4.—Incendiary hand grenade.

The radius of the burst is approximately 6 meters, but fragments of the plastic body occasionally fly as far as 27 meters. Effective portions of the agent may be carried as far as 75 to 100 meters downwind. Personnel using these grenades should wear protective gas masks.

Incendiary Grenades

The AN-M14 incendiary (thermite) hand grenade is cylindrical in shape and has a sheet metal body with emission holes in the top (fig. 12-4). It weighs 32 ounces and contains a filler of 26.5 ounces of TH3 thermite mixture. It uses an igniting fuze that sets fire to the thermite filler after the normal delay. The thermite filler burns for approximately 40 seconds at a temperature of about 4300°F. A portion of the thermite filler changes into molten iron that flows out of the grenade and produces intense heat over a small area. This molten iron ignites or fuses whatever it touches. It is used to ignite combustible materials and to destroy all types of equipment. It burns through about one-fourth inch of steel and welds together steel or iron machinery parts when molten iron flows between them.

Smoke Grenades

The M34 white-phosphorous smoke hand grenade is designed to replace the M15 white-phosphorous hand grenade. The body of the grenade is cylindrical with a tapered bottom. It contains a filler of about 12 ounces of white phosphorous and is serrated to break up easily when detonated. The grenade weighs 27.2 ounces and the average Seabee can throw it 35 meters. The effective casualty radius is 25 meters; however, particles of phosphorous may be thrown as far as 30 meters.

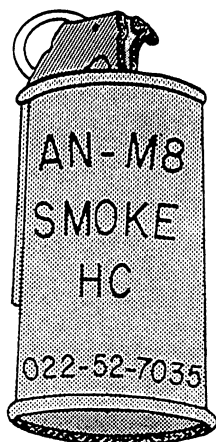


Figure 12-5.—Typical smoke grenade.

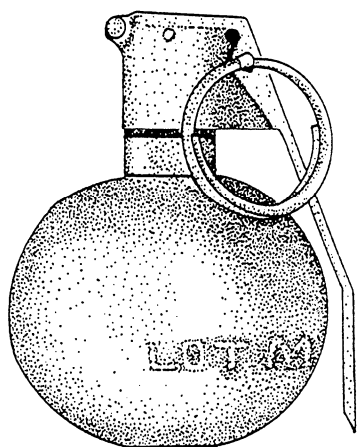


Figure 12-6.—Practice hand grenade.

M8 colored-smoke hand grenades are the same size and shape as the HC smoke grenades. The M8 will produce red, green, or yellow smoke for 1 to 1 1/2 minutes when ignited. The color of the filler is indicated in writing on the body of the grenade, and both ends are colored the same as the smoke the grenade will produce. The M8 is used for ground-to-air or ground-to-ground signaling (fig. 12-5).

NOTE

Under the new standard marking system, these grenades have a light green body with black lettering.

Practice and Training Grenades

Practice and training grenades (fig. 12-6) are used for training personnel in the care, handling, and use of hand grenades before using service grenades. Practice grenades simulate functioning of service grenades to provide realism in training. Training grenades are completely inert and do not function in any way.

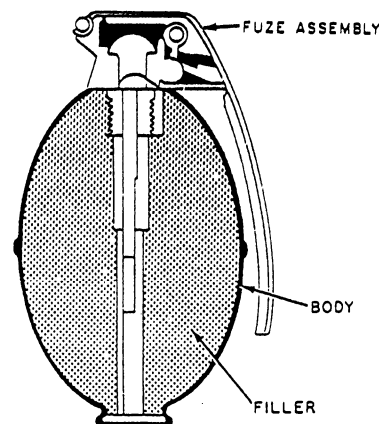


Figure 12-7.—Three main parts of the grenade.

GENERAL CHARACTERISTICS OF HAND GRENADES

The RANGE of hand grenades, in relation to other weapons, is very short. This range depends entirely on the throwing ability of each individual. As a well-trained Seabee, you should be able to throw a grenade, such as the M67 fragmentation grenade, about 35 to 40 meters.

The EFFECTIVE CASUALTY RADIUS of a hand grenade is defined as the radius of a circular area around the point of detonation within which at least 50 percent of the exposed personnel become casualties. The radius is about 16.5 yards (15 meters). This radius is small compared to the effective casualty radius of the other Seabee weapons, such as the 60-mm mortar. You must remember, however, that casualties can and do occur at distances much greater than the so-called effective casualty radius.

Except for the M36A2 fragmentation grenade with the M217 impact fuze, the grenades do NOT detonate on impact. All casualty-producing grenades (fragmentation and white phosphorus) have a 4- to 5-second delay fuze. Chemical grenades, except white phosphorus and the M25AZ tear gas grenade, have a 2-second delay fuze element.

You can compare a hand grenade to an ordinary firecracker. It consists of a paper body filled with gunpowder that is set off by a fuze. For example, when you light the fuze, it burns until it reaches the powder, which then explodes and shatters the paper body. A hand grenade functions in the same manner and consists of the same principal parts: filler, body, and fuze assembly (fig. 12-7).

The body is the container that holds the filler. It may be made of metal, glass, cardboard, or other suitable material. It may be circular, cylindrical, or

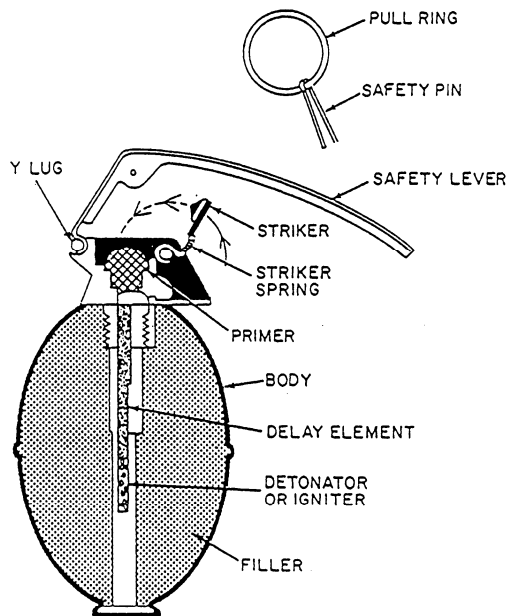


Figure 12-8.—Functioning of the fuze.

lemon-shaped. Regardless of their makeup and shape, all grenade bodies have two things in common: (1) they are hollow to contain a filler and (2) they have an opening or threaded hole to receive the fuze.

Filler is placed in the grenade body. The filler may be an explosive, such as TNT, Composition B (a composite explosive more sensitive than TNT), or black powder. It may also be a chemical, such as tear gas, thermite (incendiary), or white phosphorus.

The fuze assembly is a mechanical and chemical device that causes the filler to detonate or burn. Fuzes that burn are used primarily with chemical grenades; fuzes that detonate are used to explode fillers, such as TNT and Composition B.

When you pull the safety pin from the grenade, the safety lever should be held down firmly by your grip. When you loosen or relieve this grip, the safety lever is forced free from the grenade by a spring, allowing the striker to hit the primer (fig. 12-8). The primer sets off the delay element that burns into the detonator and igniter; this chain reaction is ended by bursting or burning of the filler in the grenade body. This entire action requires only a few seconds, so stay alert when you are handling and throwing hand grenades.

GRENAD-THROWING PROCEDURES

The two primary objectives of a hand grenade training program are to develop your proficiency in

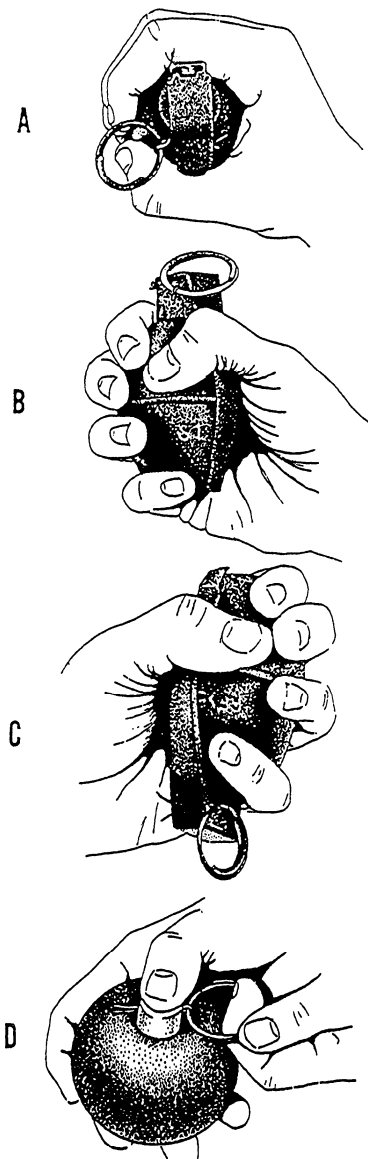


Figure 12-9.—Methods of holding the grenade.

grenade throwing and to overcome any fear that you may have of handling explosives.

Consider safety first when you are determining the proper method of holding the grenade. For maximum safety and throwing comfort, cradle the grenade in your throwing hand with the safety lever held in place by that part of your thumb between the first and second joints (fig. 12-9, view A).

For right-handed personnel, hold the grenade upright (fig. 12-9, view B). This positions the pull ring so you can remove it easily with the index finger of your free hand. For left-handed personnel, invert the grenade (fig. 12-9, view C) in your hand with the fingers and thumb of the throwing hand in the same position as right-handed personnel.



(A)



(B)



(C)



(D)

Figure 12-10.—Throwing the hand grenade.

The ABC-M25A2 riot control hand grenade has an arming sleeve that serves the same purpose as the safety lever on other types of grenades. Before throwing the riot control grenade, hold the arming sleeve in place (fig. 12-9, view D) by applying constant pressure with the thumb of your throwing hand.

Since few men throw in the same manner, it is difficult to establish firm throwing rules or techniques. However, there is a recommended method of throwing

a grenade that can be mastered easily. By practicing the steps given below, you can develop your throwing proficiency to a point where your reaction to a target becomes immediate.

1. First, observe the target and establish the distance between your throwing position and the target area.

2. Hold the grenade at shoulder level with the grenade in your throwing hand and the index finger of your opposite hand grasping the pull ring (fig. 12-10,